

13.6 Use Measures of Central Tendency and Dispersion

TEKS 8.12.A

Before

You analyzed surveys and samples.

Now

You will compare measures of central tendency and dispersion.

Why?

So you can analyze and compare data, as in Example 1.



Key Vocabulary

- measure of dispersion
- range
- mean absolute deviation

KEY CONCEPT

For Your Notebook

Measures of Central Tendency

The **mean**, or *average*, of a numerical data set is denoted by \bar{x} , which is read as “ x -bar.” For the data set x_1, x_2, \dots, x_n , the mean is $\bar{x} = \frac{x_1 + x_2 + \dots + x_n}{n}$.

The **median** of a numerical data set is the middle number when the values are written in numerical order. If the data set has an even number of values, the median is the mean of the two middle values.

The **mode** of a data set is the value that occurs most frequently. There may be one mode, no mode, or more than one mode.

EXAMPLE 1 Compare measures of central tendency

The heights (in feet) of 8 waterfalls in the state of Washington are listed below. Which measure of central tendency best represents the data?

1000, 1000, 1181, 1191, 1200, 1268, 1328, 2584

Solution

$$\bar{x} = \frac{1000 + 1000 + 1181 + 1191 + 1200 + 1268 + 1328 + 2584}{8} = \frac{10,752}{8} = 1344$$

The median is the mean of the two middle values, 1191 and 1200, or 1195.5.

The mode is 1000.

- The median best represents the data. The mode is significantly less than most of the data, and the mean is significantly greater than most of the data.

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GUIDED PRACTICE for Example 1

1. **WHAT IF?** In Example 1, suppose you eliminate the greatest data value, 2584. Which measure of central tendency best represents the remaining data? *Explain* your reasoning.